SEQUENCE LISTING

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<120> STRUCTURE OF THE FARNESOID X RECEPTOR LIGAND BINDING DOMAIN AND METHODS OF USE THEREFOR

<130> SALK3140-1

<140> 10/535,042
<141> 2005-05-13

<150> PCT/US03/036548
<151> 2003-11-14

<150> 60/426,665
<151> 2002-11-15

<150> 60/426,668
<151> 2002-11-15

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<170> PatentIn Ver. 3.3

<210> 1
<211> 476
<212> PRT
<213> Homo sapiens

<400> 1

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Met Gly Ser Lys Met Asn Leu Ile Glu His Ser His Leu Pro Thr Thr
  1               5                  10                  15

Asp Glu Phe Ser Phe Ser Glu Asn Leu Phe Gly Val Leu Thr Glu Gln
             20                  25                  30

Val Ala Gly Pro Leu Gly Gln Asn Leu Glu Val Glu Pro Tyr Ser Gln
         35                  40                  45

Tyr Ser Asn Val Gln Phe Pro Gln Val Gln Pro Gln Ile Ser Ser Ser
     50                  55                  60

Ser Tyr Tyr Ser Asn Leu Gly Phe Tyr Pro Gln Gln Pro Glu Glu Trp
 65                  70                  75                  80

Tyr Ser Pro Gly Ile Tyr Glu Leu Arg Arg Met Pro Ala Glu Thr Leu
                 85                  90                  95

Tyr Gln Gly Glu Thr Glu Val Ala Glu Met Pro Val Thr Lys Lys Pro
            100                 105                 110
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```
Arg Met Gly Ala Ser Ala Gly Arg Ile Lys Gly Asp Glu Leu Cys Val
        115                 120                 125

Val Cys Gly Asp Arg Ala Ser Gly Tyr His Tyr Asn Ala Leu Thr Cys
    130                 135                 140

Glu Gly Cys Lys Gly Phe Phe Arg Arg Ser Ile Thr Lys Asn Ala Val
145                 150                 155                 160

Tyr Lys Cys Lys Asn Gly Gly Asn Cys Val Met Asp Met Tyr Met Arg
                165                 170                 175

Arg Lys Cys Gln Glu Cys Arg Leu Arg Lys Cys Lys Glu Met Gly Met
            180                 185                 190

Leu Ala Glu Cys Met Tyr Thr Gly Leu Leu Thr Glu Ile Gln Cys Lys
        195                 200                 205

Ser Lys Arg Leu Arg Lys Asn Val Lys Gln His Ala Asp Gln Thr Val
    210                 215                 220

Asn Glu Asp Ser Glu Gly Arg Asp Leu Arg Gln Val Thr Ser Thr Thr
225                 230                 235                 240

Lys Ser Cys Arg Glu Lys Thr Glu Leu Thr Pro Asp Gln Gln Thr Leu
                245                 250                 255

Leu His Phe Ile Met Asp Ser Tyr Asn Lys Gln Arg Met Pro Gln Glu
            260                 265                 270

Ile Thr Asn Lys Ile Leu Lys Glu Glu Phe Ser Ala Glu Glu Asn Phe
        275                 280                 285

Leu Ile Leu Thr Glu Met Ala Thr Asn His Val Gln Val Leu Val Glu
    290                 295                 300

Phe Thr Lys Lys Leu Pro Gly Phe Gln Thr Leu Asp His Glu Asp Gln
305                 310                 315                 320

Ile Ala Leu Leu Lys Gly Ser Ala Val Glu Ala Met Phe Leu Arg Ser
                325                 330                 335

Ala Glu Ile Phe Asn Lys Lys Leu Pro Ser Gly His Ser Asp Leu Leu
            340                 345                 350

Glu Glu Arg Ile Arg Asn Ser Gly Ile Ser Asp Glu Tyr Ile Thr Pro
        355                 360                 365

Met Phe Ser Phe Tyr Lys Ser Ile Gly Glu Leu Lys Met Thr Gln Glu
    370                 375                 380

Glu Tyr Ala Leu Leu Thr Ala Ile Val Ile Leu Ser Pro Asp Arg Gln
385                 390                 395                 400

Tyr Ile Lys Asp Arg Glu Ala Val Glu Lys Leu Gln Glu Pro Leu Leu
                405                 410                 415
```

```
Asp Val Leu Gln Lys Leu Cys Lys Ile His Gln Pro Glu Asn Pro Gln
            420                 425                 430

His Phe Ala Cys Leu Leu Gly Arg Leu Thr Glu Leu Arg Thr Phe Asn
        435                 440                 445

His His His Ala Glu Met Leu Met Ser Trp Arg Val Asn Asp His Lys
    450                 455                 460

Phe Thr Pro Leu Leu Cys Glu Ile Trp Asp Val Gln
465                 470                 475
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<210> 2
<211> 472
<212> PRT
<213> Homo sapiens

<400> 2

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Met Gly Ser Lys Met Asn Leu Ile Glu His Ser His Leu Pro Thr Thr
  1               5                  10                  15

Asp Glu Phe Ser Phe Ser Glu Asn Leu Phe Gly Val Leu Thr Glu Gln
             20                  25                  30

Val Ala Gly Pro Leu Gly Gln Asn Leu Glu Val Glu Pro Tyr Ser Gln
         35                  40                  45

Tyr Ser Asn Val Gln Phe Pro Gln Val Gln Pro Gln Ile Ser Ser Ser
     50                  55                  60

Ser Tyr Tyr Ser Asn Leu Gly Phe Tyr Pro Gln Gln Pro Glu Glu Trp
 65                  70                  75                  80

Tyr Ser Pro Gly Ile Tyr Glu Leu Arg Arg Met Pro Ala Glu Thr Leu
                 85                  90                  95

Tyr Gln Gly Glu Thr Glu Val Ala Glu Met Pro Val Thr Lys Lys Pro
            100                 105                 110

Arg Met Gly Ala Ser Ala Gly Arg Ile Lys Gly Asp Glu Leu Cys Val
        115                 120                 125

Val Cys Gly Asp Arg Ala Ser Gly Tyr His Tyr Asn Ala Leu Thr Cys
    130                 135                 140

Glu Gly Cys Lys Gly Phe Phe Arg Arg Ser Ile Thr Lys Asn Ala Val
145                 150                 155                 160

Tyr Lys Cys Lys Asn Gly Gly Asn Cys Val Met Asp Met Tyr Met Arg
                165                 170                 175

Arg Lys Cys Gln Glu Cys Arg Leu Arg Lys Cys Lys Glu Met Gly Met
            180                 185                 190

Leu Ala Glu Cys Leu Leu Thr Glu Ile Gln Cys Lys Ser Lys Arg Leu
        195                 200                 205
```

```
Arg Lys Asn Val Lys Gln His Ala Asp Gln Thr Val Asn Glu Asp Ser
    210                 215                 220

Glu Gly Arg Asp Leu Arg Gln Val Thr Ser Thr Thr Lys Ser Cys Arg
225                 230                 235                 240

Glu Lys Thr Glu Leu Thr Pro Asp Gln Gln Thr Leu Leu His Phe Ile
                245                 250                 255

Met Asp Ser Tyr Asn Lys Gln Arg Met Pro Gln Glu Ile Thr Asn Lys
            260                 265                 270

Ile Leu Lys Glu Glu Phe Ser Ala Glu Glu Asn Phe Leu Ile Leu Thr
        275                 280                 285

Glu Met Ala Thr Asn His Val Gln Val Leu Val Glu Phe Thr Lys Lys
    290                 295                 300

Leu Pro Gly Phe Gln Thr Leu Asp His Glu Asp Gln Ile Ala Leu Leu
305                 310                 315                 320

Lys Gly Ser Ala Val Glu Ala Met Phe Leu Arg Ser Ala Glu Ile Phe
                325                 330                 335

Asn Lys Lys Leu Pro Ser Gly His Ser Asp Leu Leu Glu Glu Arg Ile
            340                 345                 350

Arg Asn Ser Gly Ile Ser Asp Glu Tyr Ile Thr Pro Met Phe Ser Phe
        355                 360                 365

Tyr Lys Ser Ile Gly Glu Leu Lys Met Thr Gln Glu Glu Tyr Ala Leu
    370                 375                 380

Leu Thr Ala Ile Val Ile Leu Ser Pro Asp Arg Gln Tyr Ile Lys Asp
385                 390                 395                 400

Arg Glu Ala Val Glu Lys Leu Gln Glu Pro Leu Leu Asp Val Leu Gln
                405                 410                 415

Lys Leu Cys Lys Ile His Gln Pro Glu Asn Pro Gln His Phe Ala Cys
            420                 425                 430

Leu Leu Gly Arg Leu Thr Glu Leu Arg Thr Phe Asn His His His Ala
        435                 440                 445

Glu Met Leu Met Ser Trp Arg Val Asn Asp His Lys Phe Thr Pro Leu
    450                 455                 460

Leu Cys Glu Ile Trp Asp Val Gln
465                 470
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<210> 3
<211> 229
<212> PRT
<213> Homo sapiens

<400> 3
Glu Leu Thr Pro Asp Gln Gln Thr Leu Leu His Phe Ile Met Asp Ser
1 5 10 15

Tyr Asn Lys Gln Arg Met Pro Gln Glu Ile Thr Asn Lys Ile Leu Lys
20 25 30

Glu Glu Phe Ser Ala Glu Glu Asn Phe Leu Ile Leu Thr Glu Met Ala
35 40 45

Thr Asn His Val Gln Val Leu Val Glu Phe Thr Lys Lys Leu Pro Gly
50 55 60

Phe Gln Thr Leu Asp His Glu Asp Gln Ile Ala Leu Leu Lys Gly Ser
65 70 75 80

Ala Val Glu Ala Met Phe Leu Arg Ser Ala Glu Ile Phe Asn Lys Lys
85 90 95

Leu Pro Ser Gly His Ser Asp Leu Leu Glu Glu Arg Ile Arg Asn Ser
100 105 110

Gly Ile Ser Asp Glu Tyr Ile Thr Pro Met Phe Ser Phe Tyr Lys Ser
115 120 125

Ile Gly Glu Leu Lys Met Thr Gln Glu Glu Tyr Ala Leu Leu Thr Ala
130 135 140

Ile Val Ile Leu Ser Pro Asp Arg Gln Tyr Ile Lys Asp Arg Glu Ala
145 150 155 160

Val Glu Lys Leu Gln Glu Pro Leu Leu Asp Val Leu Gln Lys Leu Cys
165 170 175

Lys Ile His Gln Pro Glu Asn Pro Gln His Phe Ala Cys Leu Leu Gly
180 185 190

Arg Leu Thr Glu Leu Arg Thr Phe Asn His His His Ala Glu Met Leu
195 200 205

Met Ser Trp Arg Val Asn Asp His Lys Phe Thr Pro Leu Leu Cys Glu
210 215 220

Ile Trp Asp Val Gln
225

<210> 4
<211> 305
<212> PRT
<213> Homo sapiens

<400> 4
Lys Leu Ser Glu Glu Gln Gln Arg Ile Ile Ala Ile Leu Leu Asp Ala
1 5 10 15

His His Lys Thr Tyr Asp Pro Thr Tyr Ser Asp Phe Cys Gln Phe Arg
20 25 30

```
Pro Pro Val Arg Val Asn Asp Gly Gly Gly Ser His Pro Ser Arg Pro
          35                  40                  45

Asn Ser Arg His Thr Pro Ser Phe Ser Gly Asp Ser Ser Ser Ser Cys
      50                  55                  60

Ser Asp His Cys Ile Thr Ser Ser Asp Met Met Asp Ser Ser Ser Phe
 65                  70                  75                  80

Ser Asn Leu Asp Leu Ser Glu Glu Asp Ser Asp Asp Pro Ser Val Thr
                 85                  90                  95

Leu Glu Leu Ser Gln Leu Ser Met Leu Pro His Leu Ala Asp Leu Val
            100                 105                 110

Ser Tyr Ser Ile Gln Lys Val Ile Gly Phe Ala Lys Met Ile Pro Gly
        115                 120                 125

Phe Arg Asp Leu Thr Ser Glu Asp Gln Ile Val Leu Leu Lys Ser Ser
    130                 135                 140

Ala Ile Glu Val Ile Met Leu Arg Ser Asn Glu Ser Phe Thr Met Asp
145                 150                 155                 160

Asp Met Ser Trp Thr Cys Gly Asn Gln Asp Tyr Lys Tyr Arg Val Ser
                165                 170                 175

Asp Val Thr Lys Ala Gly His Ser Leu Glu Leu Ile Glu Pro Leu Ile
            180                 185                 190

Lys Phe Gln Val Gly Leu Lys Lys Leu Asn Leu His Glu Glu Glu His
        195                 200                 205

Val Leu Leu Met Ala Ile Cys Ile Val Ser Pro Asp Arg Pro Gly Val
    210                 215                 220

Gln Asp Ala Ala Leu Ile Glu Ala Ile Gln Asp Arg Leu Ser Asn Thr
225                 230                 235                 240

Leu Gln Thr Tyr Ile Arg Cys Arg His Pro Pro Pro Gly Ser His Leu
                245                 250                 255

Leu Tyr Ala Lys Met Ile Gln Lys Leu Ala Asp Leu Arg Ser Leu Asn
            260                 265                 270

Glu Glu His Ser Lys Gln Tyr Arg Cys Leu Ser Phe Gln Pro Glu Cys
        275                 280                 285

Ser Met Lys Leu Thr Pro Leu Val Leu Glu Val Phe Gly Asn Glu Ile
    290                 295                 300

Ser
305
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<210> 5
<211> 293
<212> PRT
<213> Homo sapiens

<400> 5

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Gly Leu Thr Glu Glu Gln Arg Met Met Ile Arg Glu Leu Met Asp Ala
  1               5                  10                  15

Gln Met Lys Thr Phe Asp Thr Thr Phe Ser His Phe Lys Asn Phe Arg
             20                  25                  30

Leu Pro Gly Val Leu Ser Ser Gly Cys Glu Leu Pro Glu Ser Leu Gln
         35                  40                  45

Ala Pro Ser Arg Glu Glu Ala Ala Lys Trp Ser Gln Val Arg Lys Asp
     50                  55                  60

Leu Cys Ser Leu Lys Val Ser Leu Gln Leu Arg Gly Glu Asp Gly Ser
 65                  70                  75                  80

Val Trp Asn Tyr Lys Pro Pro Ala Asp Ser Gly Gly Lys Glu Ile Phe
                 85                  90                  95

Ser Leu Leu Pro His Met Ala Asp Met Ser Thr Tyr Met Phe Lys Gly
            100                 105                 110

Ile Ile Ser Phe Ala Lys Val Ile Ser Tyr Phe Arg Asp Leu Pro Ile
        115                 120                 125

Glu Asp Gln Ile Ser Leu Leu Lys Gly Ala Ala Phe Glu Leu Cys Gln
    130                 135                 140

Leu Arg Phe Asn Thr Val Phe Asn Ala Glu Thr Gly Thr Trp Glu Cys
145                 150                 155                 160

Gly Arg Leu Ser Tyr Cys Leu Glu Asp Thr Ala Gly Gly Phe Gln Gln
                165                 170                 175

Leu Leu Leu Glu Pro Met Leu Lys Phe His Tyr Met Leu Lys Lys Leu
            180                 185                 190

Gln Leu His Glu Glu Glu Tyr Val Leu Met Gln Ala Ile Ser Leu Phe
        195                 200                 205

Ser Pro Asp Arg Pro Gly Val Leu Gln His Arg Val Val Asp Gln Leu
    210                 215                 220

Gln Glu Gln Phe Ala Ile Thr Leu Lys Ser Tyr Ile Glu Cys Asn Arg
225                 230                 235                 240

Pro Gln Pro Ala His Arg Phe Leu Phe Leu Lys Ile Met Ala Met Leu
                245                 250                 255

Thr Glu Leu Arg Ser Ile Asn Ala Gln His Thr Gln Arg Leu Leu Arg
            260                 265                 270
```

```
Ile Gln Asp Ile His Pro Phe Ala Thr Pro Leu Met Gln Glu Leu Phe
        275                 280                 285

Gly Ile Thr Gly Ser
    290
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<210> 6
<211> 240
<212> PRT
<213> Homo sapiens

<400> 6

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Thr Ser Ser Ala Asn Glu Asp Met Pro Val Glu Arg Ile Leu Glu Ala
  1               5                  10                  15

Glu Leu Ala Val Glu Pro Lys Thr Glu Thr Tyr Val Glu Ala Asn Met
             20                  25                  30

Gly Leu Asn Pro Ser Ser Pro Asn Asp Pro Val Thr Asn Ile Cys Gln
         35                  40                  45

Ala Ala Asp Lys Gln Leu Phe Thr Leu Val Glu Trp Ala Lys Arg Ile
     50                  55                  60

Pro His Phe Ser Glu Leu Pro Leu Asp Asp Gln Val Ile Leu Leu Arg
 65                  70                  75                  80

Ala Gly Trp Asn Glu Leu Leu Ile Ala Ser Phe Ser His Arg Ser Ile
                 85                  90                  95

Ala Val Lys Asp Gly Ile Leu Leu Ala Thr Gly Leu His Val His Arg
            100                 105                 110

Asn Ser Ala His Ser Ala Gly Val Gly Ala Ile Phe Asp Arg Val Leu
        115                 120                 125

Thr Glu Leu Val Ser Lys Met Arg Asp Met Gln Met Asp Lys Thr Glu
    130                 135                 140

Leu Gly Cys Leu Arg Ala Ile Val Leu Phe Asn Pro Asp Ser Lys Gly
145                 150                 155                 160

Leu Ser Asn Pro Ala Glu Val Glu Ala Leu Arg Glu Lys Val Tyr Ala
                165                 170                 175

Ser Leu Glu Ala Tyr Cys Lys His Lys Tyr Pro Glu Gln Pro Gly Arg
            180                 185                 190

Phe Ala Lys Leu Leu Leu Arg Leu Pro Ala Leu Arg Ser Ile Gly Leu
        195                 200                 205

Lys Cys Leu Glu His Leu Phe Phe Phe Lys Leu Ile Gly Asp Thr Pro
    210                 215                 220

Ile Asp Thr Phe Leu Met Glu Met Leu Glu Ala Pro His Gln Met Thr
225                 230                 235                 240
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